February 4, 2019

Q.1) 'Seleka Rebels' are associated with which of the following countries?

a) Nigeria
b) Central African Republic
c) Ivory Coast
d) Congo

Q.1) Solution (b)

Séléka CPSK-CPJP-UFDR is an alliance of rebel militia groups that subjugated the Central African Republic (CAR) on March 24, 2013. After its official dissolution in September 2013, the remaining rebel groups became known as Ex-Séléka. Séléka leader Michel Djotodia became the nation's president from March 2013 until his resignation in January 2014. Members of Séléka are almost entirely Muslim.

Source: http://www.newsonair.com/News?title=UNSC-adopts-resolution-to-extend-sanctions-against-CAR-for-another-year&id=358996

Q.2) 'Anti-balaka' militants is associated with

a) Yemen
b) Syria
c) Djibouti
d) Central African Republic

Q.2) Solution (d)

The Anti-balaka is an alliance of militia groups based in the Central African Republic said to be composed primarily of Christians.

THINK!

- United Nations Security Council resolution 2454

Source: http://www.newsonair.com/News?title=UNSC-adopts-resolution-to-extend-sanctions-against-CAR-for-another-year&id=358996

Q.3) The term 'Customer Acceptance Test' was in news recently in the context of

a) Mirage 2000 aircraft
b) PM-KISAN
c) E-Vehicles
d) Train – 18

Q.3) Solution (a)

Source: https://www.thehindu.com/news/national/hal-draws-flak-on-social-media-following-mirage-crash/article26164849.ece

Q.4) Consider the following statements with respect to the term 'Brumation'

1. It is a dormant period when cold-blooded reptiles temporarily shut down all activity to conserve energy.
2. It is an innate behaviour for reptiles, regardless of the environment.

Select the correct statements:

a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

Q.4) Solution (c)

Brumation, which is essentially the reptilian equivalent of hibernation, is a dormant period when cold-blooded reptiles temporarily shut down all activity to conserve energy.

Brumation is an innate behavior for reptiles, meaning that their bodies tell them to do it naturally, regardless of environment.

Unlike hibernation in mammals, brumation is not a sleeping period for reptiles. Reptiles in brumation still need to drink water and may wake for several days at a time before returning to brumation.

Different reptiles brumate in different ways. Some tortoises burrow themselves as deep as 6 feet into the ground to wait out seasons. Garter snakes huddle into groups to brumate, using their combined body heat to help each other survive.

Amphibians that aren't very skilled at burrowing, like tree frogs, can sometimes be frozen solid during colder winters. Incredibly, these cold-blooded frogs will even stop the beating of their hearts and production of their lungs until warmer weather returns.

Source: https://www.accuweather.com/en/weather-news/heres-why-alligators-are-purposefully-freezing-themselves-in-north-carolina-swamps/70007255

Q.5) Consider the following statements with respect to 'microbial fuel cell (MFC)'

1. It harnesses the power of respiring microbes to convert organic substrates directly into electrical energy
2. It transforms chemical energy into electricity using oxidation reduction reactions

Select the correct statement

a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

Q.5) Solution (c)

A microbial fuel cell (MFC) is a bio-electrochemical device that harnesses the power of respiring microbes to convert organic substrates directly into electrical energy. At its core, the MFC is a fuel cell, which transforms chemical energy into electricity using oxidation reduction reactions. The key difference of course is in the name, microbial fuel cells rely on living biocatalysts to facilitate the movement of electrons throughout their systems instead of the traditional chemically catalyzed oxidation of a fuel at the anode and reduction at the cathode.

Microbial fuel cells work by allowing bacteria to do what they do best, oxidize and reduce organic molecules. Bacterial respiration is basically one big redox reaction in which electrons are being moved around. Whenever you have moving electrons, the potential exists for harnessing an electromotive force to perform useful work. A MFC consists of an anode and a cathode separated by a cation specific membrane. Microbes at the anode oxidize the organic fuel generating protons which pass through the membrane to the cathode, and electrons which pass through the anode to an external circuit to generate a current. The trick of course is collecting the electrons released by bacteria as they respire. This leads to two types of MFCs: mediator and mediatorless.

Source: https://www.thehindu.com/sci-tech/science/microbial-fuel-cell-treats-textile-wastewater/article26161637.ece